

**CLAIMS:**

1. A controlled release composition for oral administration, comprising:
  - (1) an immediate release pellet comprising:
    - (a) venlafaxine, its active metabolite, isomers, or a pharmaceutically acceptable salts thereof;
    - (b) an inert pellet; and
    - (c) a binder;
  - (2) an extended release pellet comprising:
    - (i) a core comprising:
      - (a) venlafaxine, its active metabolite, isomers, or a pharmaceutically acceptable salts thereof;
      - (b) an inert pellet; and
      - (c) a binder;
    - (ii) a coating surrounding the core comprising:
      - (a) a water-insoluble polymer.
2. The controlled release composition according to claim 1 wherein the maximum plasma concentration in humans of venlafaxine is obtained in less than four hours.
3. The controlled release composition according to claim 2 wherein the maximum plasma concentration of venlafaxine is obtained in about one to about four hours.
4. The controlled release composition according to claim 1 wherein
  - (1) the immediate release pellet comprises:
    - (a) 30-80 % of venlafaxine, its active metabolite, isomer, or pharmaceutically acceptable salt thereof;
    - (b) 20-70% of an inert pellet; and
    - (c) 1-20% of a binder; and
  - (2) the extended release pellet comprises:

- (i) the core comprising:
- (a) 30-80% of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salts thereof;
  - (b) 20-70% of an inert pellet; and
  - (c) 1-20% of a binder;
- (ii) the coating and optionally the second coating if employed comprising;
- (a) 40-99% of a water insoluble polymer;
  - (b) 0-20% of a surfactant;
  - (c) 0-15% of an antisticking agent; and
  - (d) 0-30% of a plasticizer.
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- (1) the immediate release pellet comprises:
- (a) 45-70 % of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salts;
  - (b) 30-50% of an inert pellet; and
  - (c) 2-15% of a binder; and
- (2) the extended release pellet comprises:
- (i) the core comprising:
- (a) 50-70% of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salt;
  - (b) 30-50% of an inert pellet; and
  - (c) 2-15% of a binder; and
- (ii) the coating and optionally the second coating if employed comprising:
- (a) 50-90% of a water insoluble polymer;
  - (b) 0.1-10% of a surfactant;
  - (c) 2-10% of an antisticking agent; and
  - (d) 0.1-15% of a plasticizer.

6. The controlled release composition according to claim 1, in which said inert pellet is selected from the group consisting of starch spheres, sugar, microcrystalline cellulose, glass, vegetable gums, and waxes, said inert pellet starting material having a diameter ranging from about 15 to about 60 mesh.
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7. The controlled release composition according to claim 1, wherein the extended release pellets comprise from about 40-80 % of the total drug.
8. The controlled release composition according to claim 7, wherein the extended release pellets comprise from 60-75% of the total drug.
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9. The controlled release composition according to claim 1, wherein the binder is selected from the group consisting of cellulose esters, cellulose ethers, polyoxides, polyacrylates, polyethylene, polypropylene, polyurethane, hydroxypropyl methylcellulose, hydroxypropyl cellulose, polyvinylpyrrolidone and mixtures of the foregoing.
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10. The controlled release composition according to claim 1, wherein the binder is a water insoluble polymer.
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11. The controlled release composition according to claim 10, wherein the binder is ethylcellulose.
12. The controlled release composition according to claim 1 wherein the binder is a mixture of water insoluble polymers and water soluble polymers.
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13. The controlled release composition according to claim 12 wherein the binder is a mixture of ethylcellulose and polyvinyl pyrrolidone.
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14. The controlled release composition according to claim 1, wherein the water-

insoluble polymer is selected from the group consisting of polymethacrylate, methacrylic acid copolymers, methacrylate ester copolymers, acrylic acid, cellulose esters, a cellulose ethers, cellulose ester-ethers or mixtures thereof.

- 5    15.    The controlled release composition according to claim 1 wherein the water insoluble polymer is polymethacrylate, methacrylic acid copolymers, methacrylate ester copolymers, acrylic acid.
- 10    16.    The controlled release composition according to claim 1 wherein the second coating is not optional.
- 15    17.    The controlled release composition according to claim 1 wherein the first water insoluble polymer is a polymethacrylate, methacrylic acid copolymers, methacrylate ester copolymers or acrylic acid.
18.    The controlled release composition according to claim 1 that exhibits the following dissolution profile when tested according to USP 26 with a Type 2 Apparatus at 50 rpm in distilled water at 37°C:
- 20            0-55% of the venlafaxine is released after one hour;  
              20-60% of the venlafaxine is released after four hours;  
              25-80% of the venlafaxine is released after eight hours; and  
              not less than 50% of the venlafaxine is released after twenty four hours.
- 25    19.    The controlled release composition according to claim 18 having the following dissolution profile when tested according to USP 26 with a Type 2 Apparatus at 50 rpm in distilled water at 37°C:
- 30            10-40% of the venlafaxine is released after one hour;  
              30-50% of the venlafaxine is released after four hours;  
              35-70% of the venlafaxine is released after eight hours; and  
              not less than 60% of the venlafaxine is released after twenty-four hours.

20. A method for providing a therapeutic blood plasma concentration of venlafaxine over a twenty four hour period which comprises administering orally to a patient in need thereof, a controlled release formulation that provides a peak plasma blood level of venlafaxine obtained in less than four hours.
21. The method according to claim 20 wherein peak plasma blood level of venlafaxine is obtained in about one to about four hours.
22. The controlled release composition according to claim 1, wherein said composition is in the form of a tablet or capsule.
23. A controlled release composition consisting essentially of:
- (1) an immediate release pellet consisting essentially of:
- (a) 30-80 % of venlafaxine, its active metabolite, isomer, or pharmaceutically acceptable salt thereof;
  - (b) 20-70% of an inert pellet; and
  - (c) 1-20% of a binder; and
- (2) an extended release pellet consisting essentially of:
- (i) a core consisting essentially of:
    - (a) 30-80% of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salts thereof;
    - (b) 20-70% of an inert pellet; and
    - (c) 1-20% of a binder;
  - (ii) a coating consisting essentially of:
    - (a) 40-99% of a water insoluble polymer;
    - (b) 0-30% of a surfactant;
    - (c) 0-15% of an antisticking agent; and
    - (d) 0-30% of a plasticizer;

wherein the peak plasma concentration of the venlafaxine is obtained in less than four hours and the extended release pellets comprises about 40-80% of the total drug.

5     24.     The controlled release composition according to claim 23 wherein

(1) the immediate release pellet consist essentially of:

(a) 45-70 % of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salts thereof;

(b) 30-50% of an inert pellet; and

10     (c) 2-15% of a binder; and

(2) the extended release pellet consist essentially of:

(i) a core consisting essentially of:

(a) 45-70% of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salt thereof;

15     (b) 30-50% of an inert pellet; and

(c) 2-15% of a binder; and

(ii) a coating consisting essentially of:

(a) 50-90% of a water insoluble polymer;

(b) 0.1-10% of a surfactant;

20     (c) 2-10% of an antisticking agent; and

(d) 0.1-15% of a plasticizer;

wherein the peak plasma concentration of the venlafaxine is obtained in less than five hours and the extended release pellets comprises about 60-75% of the total drug.

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25.     The controlled release composition according to claim 24 wherein the maximum plasma concentration of venlafaxine is obtained in less than four hours.

30     26.     The controlled release composition according to claim 25 wherein the maximum plasma concentration of venlafaxine is obtained in about one to about four hours.

27. A controlled release composition for oral administration, according to Claim 1, comprising:
- (1) an immediate release pellet comprising:
- 5 (a) venlafaxine, its active metabolite, isomers, or a pharmaceutically acceptable salts thereof;
- (b) an inert pellet; and
- (c) a binder;
- (2) an extended release pellet comprising:
- 10 (i) a core comprising:
- (a) venlafaxine, its active metabolite, isomers, or a pharmaceutically acceptable salts thereof;
- (b) an inert pellet; and
- (c) a binder;
- 15 (ii) a coating surrounding the core comprising:
- (a) a water-insoluble polymer;
- (iii) a second coating comprising
- (a) a water-insoluble polymer;
- (b) a antisticking agent; and
- 20 (c) a plasticizer.
28. The controlled release composition according to claim 27, wherein
- (1) the immediate release pellet comprises:
- (a) 30-80 % of venlafaxine, its active metabolite, isomer, or
- 25 pharmaceutically acceptable salt thereof;
- (b) 20-70% of an inert pellet; and
- (c) 1-20% of a binder; and
- (2) the extended release pellet comprises:
- (i) the core comprising:
- 30 (a) 30-80% of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salts thereof;
- (b) 20-70% of an inert pellet; and

- (c) 1-20% of a binder;
  - (ii) a first coating comprising;
    - (a) 40-99% of a water insoluble polymer;
    - (b) 0-20% of a surfactant;
    - 5 (c) 0-15% of an antisticking agent; and
    - (d) 0-30% of a plasticizer;
  - (iii) a second coating comprising;
    - (a) 30-90 % of a water-insoluble polymer;
    - (b) 5-50 % of a antisticking agent; and
    - 10 (c) 1-20 % of a plasticizer.
29. The controlled release composition according to claim 28 wherein
- (1) the immediate release pellet comprises:
    - 15 (a) 45-70 % of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salts;
    - (b) 30-50% of an inert pellet; and
    - (c) 2-15% of a binder; and
  - (2) the extended release pellet comprises:
    - (i) the core comprising:
      - 20 (a) 50-70% of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salt;
      - (b) 30-50% of an inert pellet; and
      - (c) 2-15% of a binder; and
    - (ii) the first coating comprising:
      - 25 (a) 50-90% of a water insoluble polymer;
      - (b) 0.1-10% of a surfactant;
      - (c) 2-10% of an antisticking agent; and
      - (d) 0.1-15% of a plasticizer;
    - (iii) a second coating comprising
      - 30 (a) 45-70 % of a water-insoluble polymer;
      - (b) 20-40% of a antisticking agent; and
      - (c) 5-15 % of a plasticizer.



30. A controlled release composition, consisting essentially of:
- (1) an immediate release pellet consisting essentially of:
- 5 (a) 30-80 % of venlafaxine, its active metabolite, isomer, or pharmaceutically acceptable salt thereof;
- (b) 20-70% of an inert pellet; and
- (c) 1-20% of a binder; and
- (2) an extended release pellet consisting essentially of:
- (i) a core consisting essentially of:
- 10 (a) 30-80% of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salts thereof;
- (b) 20-70% of an inert pellet; and
- (c) 1-20% of a binder;
- (ii) a coating consisting essentially of:
- 15 (a) 40-99% of a water insoluble polymer;
- (b) 0-30% of a surfactant;
- (c) 0-15% of an antisticking agent; and
- (d) 0-30% of a plasticizer; and
- (iii) a second coating comprising:
- 20 (a) 30-90 % of a water-insoluble polymer;
- (b) 5-50 % of a antisticking agent; and
- (c) 1-20 % of a plasticizer.
- wherein the peak plasma concentration of the venlafaxine is obtained in less than four hours and the extended release pellets comprises about 40-80% of the total
- 25 drug.

31. The controlled release composition according to claim 30 wherein the maximum plasma concentration of venlafaxine is obtained in about one to about four hours.

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32. The controlled release composition according to claim 30 wherein

(1) the immediate release pellet consist essentially of:

- (a) 45-70 % of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salts thereof;
- (b) 30-50% of an inert pellet; and
- (c) 2-15% of a binder; and
- 5 (2) the extended release pellet consist essentially of:
- (i) a core consisting essentially of:
- (a) 45-70% of venlafaxine, its active metabolite, isomer, or a pharmaceutically acceptable salt thereof;
- (b) 30-50% of an inert pellet; and
- 10 (c) 2-15% of a binder; and
- (ii) a first coating consisting essentially of:
- (a) 50-90% of a water insoluble polymer;
- (b) 0.1-10% of a surfactant;
- (c) 2-10% of an antisticking agent; and
- 15 (d) 0.1-15% of a plasticizer; and
- (iii) a second coating comprising;
- (a) 45-70 % of a water-insoluble polymer;
- (b) 20-40% of a dusting agent; and
- (c) 5-15 %of a plasticizer.
- 20 wherein the peak plasma concentration of the venlafaxine is obtained in less than four hours and the extended release pellets comprises about 60-75% of the total drug.

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